JOB:

CONTRACT BID ITEM:

QUANTITY: DIRECT COSTS

ESTIMATE WORK SHEET

SHEET 12 OF

PREPARED BY:

CHECKED BY:

CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
1	GENERAL					4589175	57095	60500	7739200		3577622	7680	1222665	997530	18351467	✓
2	DAMS - U/S COFFERDAM					2243570	220000	658585	6174350		1066555		659200	407930	11430190	✓
3	D/S COFFERDAM					209680	40345		74000		96087	5210	33360	24435	483117	✓
4	INTAKE CHANNEL "					340230	57525		142530	46750	155425	8370	61080	43485	851395	✓
5	SOUTH DAM					2805992	136770	66000	1341210		1187513	22080	410000	331275	5500840	✓
6	NORTH DAM RCC ETC					7081358	3999285	3060375	9221,690		5028175	415048	1830625	1234713	69404469	✓
7	TAILRACE WORK					3411905	1684410	58100			1335370		847620	668880	8006285	✓
8	NORTH DAM ELECTRICAL								120475						120475	✓
						29881910	6195430	3446760	24813455	46750	12446747	458388	5650550	3708248	114848238	
	INDIRECTS					3517460	10385000	225000	4810000		4377000		3224000	2040000	60738400	
						65069310	17080430	31671760	29623455	46750	16803747	458388	8874550	5748248	174,786,638	
												CONTINGENCY 5%			8740000	
															183526638	
												PROFIT 10%			18355000	
															201,881,638	
	TOTAL															

JOB:

CONTRACT BID ITEM:

QUANTITY: SOUTH ROCKFILL DAM

ESTIMATE WORK SHEET

SHEET 1 OF

PREPARED BY:

CHECKED BY:

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
78	1	OVERBURDEN EXCAVATION	93400	M^3			429860					156620		101760	85460	773700	$8^{28}/M^3$
79	2	FDN PREPARATION WATERJETEZ	3400	M^2			236640	2150				42720		15920	6705	304135	$89^{45}/M^2$
80	3	ROCK EXCAVATION (INCL'D DENTAL)	2000	M^3			39180	39490				29985		17990	11995	138640	$69^{32}/M^3$
81	4	DENTAL CONCRETE (1,200)	700	M^3			114300			162000		11665	19080	9460	9460	325965	$465^{66}/M^3$
82	5	SLUSH GROUT	3400	M^2			9900	85250				1550	3000	1550	1550	102800	$30^{23}/M^2$
83	6	DRY PACT	20	M^3			1000			9900		200		200	200	11500	$575^{00}/M^3$
84	7	GROUTING HOLES	1200	M			22165	4200		180000		9845		3000	2600	221810	$184^{85}/M$
85	8	DRYCEMENT INCORPORTED IN GROUT	42000	KG			21000		42000							63000	$1^{50}/KG$
86	9	DRILLING CHECK HOLES (CORED)	30	LM					12000							12000	$400^{00}/M$
87	10	DRILLING CHECK HOLES (NON-CORED)	60	LM					12000							12000	$200^{00}/M$
88	11	GROUTING - SUCCESSFULL CONN.	250	EA			85680	5580				33480		4270	3705	132715	$530^{86}/EA$
89	12	WATER PRESSURE TEST - 5 STAGES	8	HRS						4000						4000	$500^{00}/HR$
90	13	WATERTEST - SUCCESSFULL CONN.	18	EA			6150	100				2700		100	100	9150	$508^{00}/EA$
91	14	UPLIFT GAUGES	1	EA						500						500	$500^{00}/EA$
92	15	THERMISTOR	1	EA						4000						4000	$4000^{00}/EA$
93	16	COMPACTED TILL ZONE 1 AND 1C	25300	M^3			135500					297325		29730	22960	485515	$19^{19}/M^3$
94	17	COMPACTED GRANULAR ZONE 2A	25000	M^3			122220			398550		264713		26345	20360	832188	$33^{30}/M^3$
95	18	COMPACTED CRUSHED STONE ZONE 3A	10500	M^3			51200			307200		51610		7000	7000	424010	$40^{38}/M^3$
96	19	" " " ZONE 3B	15650	M^3			96840			241300		35390		23325	19305	416160	$26^{60}/M^3$
97	20	COMPACTED ROCKFILL ZONE 3C	20700	M^3			212130					78420		55250	43430	389230	$18^{80}/M^3$
98	21	" " ZONE 3D	48700	M^3			313130					115960		78285	65070	572445	$11^{75}/M^3$
99	22	RIPRAP ZONE 4	6000	M^3			107532					53760		35545	31105	227942	$38^{00}/M^3$
100	23	COMPACTED CRUSHED STONE ZONES	310	M^3			1565			7760		1570		270	270	11435	$37^{00}/M^3$
	24	VIBRATING WIRE PIEZOMETERS	2	EA						8000	PLUG					8000	$4000^{00}/EA$
		TOTAL					2005992	136770	66000	1143210		1187513	22080	410000	331275	5302840	

JOB:
CONTRACT BID ITEM:
QUANTITY:

ESTIMATE WORK SHEET

SHEET 2 OF
PREPARED BY:
CHECKED BY:

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
							2005992	136770	66000	1143210		1187513	22080	410000	331275	5,302,840	
	25	TERMINAL MULTIPLEXER BOX	1	EA						4000	PLUG					4000	
	26	THERMISTORS CABLE IN EMBANKMENT	1	EA						5000	PLUG					5000	
102	27	V-NOTCH WEIRS	2	EA						4000	PLUG					4000	2000.00/EA
103	28	SHELTERS FOR V-NOTCH WEIRS	2	EA						2000	PLUG					2000	1000.00/EA
104	29	SURVEY MONUMENTS FOR SOUTH DAM	3	EA						1500	PLUG					1500	500.00/EA
	30	SURVEY MONUMENTS FOR NORTH DAM	3	EA						1500	PLUG					1500	500.00/EA
							2005992	136770	66000	1341210		1187513	22080	410000	331275	5500840	
		DOWNSTREAM COFFERDAM															
58	1	OVERBURDEN EXCAVATION	500	M^3			4500					1600		1100	850	8050	$16^{10}/M^3$
59	2	FDN. PREPARATION (WATER/JET)	1250	M^2			87600	800				15800		5890	2480	112570	$90^{05}/M^2$
60	3	ROCK EXCAVATION (DENTAL)	400	M^3			8000	8000				6800		3600	2400	28000	$70^{00}/M^3$
61	4	DENTAL CONCRETE	150	M^3			24575			34830		2510	4100	2035	2035	70085	$467^{00}/M^3$
62	5	SLUSH GROUT	1250	M^2			3665	31545				575	1110	575	575	38045	$30^{45}/M^2$
63	6	DRY PACK	6	M^3			300			3300		100		100	100	3900	$650^{00}/M^3$
64	7	COMPACTED TILL ZONE 1E 1C	2000	M^3			10840					23785		2400	1835	38860	$19^{43}/M^3$
65	8	" GRANULAR ZONE 2A	2250	M^3			11000			35870		23825		2375	2000	75070	$33^{36}/M^3$
66	9	" ROCKFILL 3C	4550	M^3			46670					17252		12155	9555	85632	$18^{80}/M^3$
67	10	" " ZONE 3D	1950	M^3			12530					4640		3130	2605	22905	$11^{75}/M^3$
							209680	40345		74000		96087	5210	33360	24435	483117	
		TOTAL															

JOB:

CONTRACT BID ITEM:

QUANTITY: INTAKE CHANNEL COFFERDAM

ESTIMATE WORK SHEET

SHEET 3 OF

PREPARED BY:

CHECKED BY:

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
68	1	OVERBURDEN EXCAVATION	8800	M^3			40840				14880			9670	8120	73510	$8^{35}/M^3$
69	2	FDN PREPARATION (WATER JET)	1700	M^2			118320	1075			21375			7960	3350	152080	$89^{45}/M^2$
70	3	ROCK EXCAVATION (DENTAL)	700	M^3			13715	13825			10495			6300	4200	48535	$69^{30}/M^2$
71	4	DENTAL CONCRETE	250	M^3			41150			58320		4200	6870	3405	4320	118265	$473^{00}/M^3$
72	5.	SLUSH GROUT	1700	M^2			4950	42625				775	1500	775	775	51400	$30^{25}/M^2$
73	6	DRY PACK	9	M^3			500			4500		100		100	100	5300	$589^{60}/M^3$
74	7	COMPACTED TILL ZONE 1 & 1C	6300	M^3			33875					74330		7435	5740	121380	$19^{27}/M^3$
75	8	COMPACTED GRANULAR ZONE 2A	4900	M^3			24450			79710		52940		5270	4070	166440	$34^{00}/M^3$
76	9	COMPACTED ROCKFILL ZONE 3C	5200	M^3			53035					19605		13815	10860	97315	$18^{71}/M^3$
77	10	COMPACTED ROCKFILL ZONE 3D	1400	M^3			9395					3475		2350	1950	17170	$12^{26}/M^3$
							340230	57525		142530	46750	155425	8370	57080	43485	851395	
		TAILRACE — CIVIL WORKS															
153	1	OVERBURDEN EXCAVATION	12000	M^3			73745					27000		17520	14700	132965	$11^{08}/M^3$
154	2	TAILRACE ROCK PLUG - DRY	170000	M^3			1462050	1009290				668655		405820	330150	3875965	$22^{80}/M^3$
155	3.	TAILRACE ROCK PLUG - WET	30000	M^3			868000	675100				482230		289345	192900	2507595	$83^{58}/M^3$
	4	CLEANING TO BEDROCK - DRY	9500	M^2			40870					15325		11545	9000	76740	$8^{08}/M^2$
156	5	GROUTED ROCK BOLTS - TYPE A	70	EA			14520		24000			4800		1920	960	46200	$660^{00}/EA$
157	6	" " " TYPE C	20	EA			5200		9100			2000		600	300	17200	$860^{00}/EA$
158	7	CHAIN LINK WIRE MESH - INSTALL	2500	M^2			107520		25000			15360		13720	13720	175320	$70^{13}/M^2$
159	8	" " " " REMOVAL	20500	M^2			840000					120000		107150	107150	1174300	$57^{00}/M^2$
							3411905	1684410	58100			1335370		847620	668880	8006285	
		TOTAL															

JOB :
CONTRACT BID ITEM :
QUANTITY : NORTH DAM

ESTIMATE WORK SHEET

SHEET 4 OF
PREPARED BY :
CHECKED BY :

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
106	1	OVERBURDEN EXCAVATION	70000	M^3			430000					157410		102140	85700	775250	$11^{08}/M^3$
107	2	FDN. PREPARATION CLEANING (WATER)	13500	M^2			934730	8500				168750		62900	26500	1201380	$89^{00}/M^2$
108	3	ROCK EXCAVATION (DENTAL)	6000	M^3			117540	118470				90000		54000	35990	416000	$69^{33}/M^3$
109	4	DENTAL CONCRETE	4000	M^3			653796			926640		66725	109138	54110	54110	1864519	$466^{00}/M^3$
110	5	SLUSH GROUT	13500	M^2			39300	338445				6155	11910	6155	6155	408120	$30^{23}/M^2$
111	6	DRY PACK (MORTAR)	70	M^3			3500			34650		1000		1000	1000	41150	$588^{00}/M^3$
112	7	GROUTING HOLES IN RCC	600	LM			22165	4200		120000		9845		3000	2600	161810	$270^{00}/M$
112	8	GROUTING HOLES IN BEDROCK	3600	LM			66495	12600		540000		29535		9000	7800	665430	$184^{75}/M$
113	9	GROUTING - SUCCESSFUL CONNECTION	720	EA			246760	16070				96425		12300	10670	382225	530/EA
114	10	DRYCEMENT INCORPORATED GROUT	126000	KG			70000		126000							196000	$1^{55}/KG$
115	11	DRILLING CHECK HOLES (CORED)	60	LM						24000						24000	$400^{00}/M$
116	12	" " " NON-CORED ROCK	120	LM						24000						24000	$200^{00}/M$
117	13	WATER PRESSURE TEST	15	HR						7500						7500	$500^{00}/HR$
118	14	" " " SUCCESSFUL CONN	36	EA			12300	200				5400		200	200	18300	$508^{00}/EA$
119	15	UPLIFT GAUGES	2	EA						2000						2000	$1000^{00}/EA$
120	16	THERMISTOR	1	EA						4000						4000	$4000^{00}/EA$
121	17	DRAINAGE HOLES FDN GALLERY	3200	LM			177320	33600				78760		24000	20800	334480	$104^{50}/M$
122	18	PVC CAPS FOR DRAINAGE HOLES	125	EA			12500		18750							31250	$250^{00}/EA$
123	19	DRAINAGE HOLES UPWARD RCC	3200	LM			354640	67200				157520		48000	41600	668960	$209^{00}/M$
125	20	VIBRATING WIRE STANDARD PIEZOMETER	9	EA			4500			36000	PLUG					40500	4500/EA
127	21	CABLES FOR VIBRATING WIRE PIEZO.	2200	LM						22000	PLUG					22000	10/M
129	22	V-NOTCH WEIRS	4	EA					8000	PLUG						8000	
130	23	VIBRATING WIRE WATER MONITORS	4	EA					8000	PLUG						8000	2000/EA
	24	PVC CONDUITS AND PULL BOXES	1	LS			2000		10000	PLUG						12000	
		TOTAL					3147546	599285	170750	1080790		867525	121048	376805	293125	6656874	

JOB :
CONTRACT BID ITEM :
QUANTITY :

ESTIMATE WORK SHEET

SHEET 5 OF
PREPARED BY :
CHECKED BY :

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
							3147546	599285	170750	1080790		867525	121048	376805	293125	6656874	
131	25	DATA LOGGER, TERMINAL BOXES	1	LS						10000	PLUG					10000	
132	26	CREST SURVEY MONUMENTS	3	EA			300			1500						1800	600.00/EA
133	27	RCC - CONCRETE	206250	M3			4770000	1890000	21302325	5585000		2700250		773100	501800	39452475	191.00/M3
134	28	CVC - CONCRETE	12500	M3	}		8764812	1512000	8225000			1350000	770000	638720	414288	21174820	889.00/M3
135	29	FACING - CONCRETE	10700	M3	}												
136	30	GERCL - U/S AND D/S	3900	M3			200000		780000			78000		20000	15000	1093000	280.00/M3
137	31	CVC (NORTH ABUTEMENT CREST)	230	M3	IN 28 & 29												
145	32	CVC (INSIDE GALLERY)	250	M3			100000	50000	87500			32400	6000	3000	1500	280400	1121.00/M3
144	33	PRECAST CONCRETE	360	M3			36000	18000		288000			18000	9000	9000	378000	1050.00/M3
146	34	STEEL REINFORCEMENT	500000	KG						1500000						1500000	3.00/KG
147	35	STEEL GUARDRAILS	5160	KG						77400						77400	15.00/KG
	36	FIBERGLASS STAIRS + RAILS	19	M						19000						19000	1000.00/M
148	37	WATERSTOP	980	M			62700		38000							100700	103.00/M
							17081358	3999285	30603575	9221690		5028175	415048	1826625	1239712	69404469	
		ELECTRICAL WORK															
149	1	EXOTHERMIC CONNECTIONS	20	EA						10000						10000	500.00/EA
150	2	BARE STRANDED CONDUCTOR 500KCM	815	M						101875						101875	
151	3	" " " SIZE 4/0 AWG	16	M						1600						1600	100.00/M
152	4	GROUNDING PLATES	7	EA						7000.00						7000.00	1000.00/EA
										120475						120475	
		TOTAL															

JOB :

CONTRACT BID ITEM :

QUANTITY : U/S COFFERDAMS ETC

ESTIMATE WORK SHEET

SHEET 6 OF

PREPARED BY :

CHECKED BY :

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
30	1	OVERBUREN EXCAV. IN DRY	1000	M^3			6000					6000		3000	3000	18000	$18^{00}/M^3$
31	2	FDN. PREPARATION (WATER JET ETC)	1200	M^2			83530	800				15080		5620	2400	107430	$89^{50}/M^2$
32	3	ROCK EXCAVATION (DENTAL)	500	M^3			10000	10000				7500		4500	3000	35000	$70^{00}/M^3$
33	4	DENTAL CONCRETE	200	M^3			34290			48600		3500	6680	3310	3310	99690	$498^{45}/M^3$
34	5	SLUSH GROUT	1000	M^2			3000	25575				465	1000	465	500	31005	$31^{00}/M^2$
35	6	DRY PACK	6	M^3			1000			3300		100		100	100	4600	$766^{00}/M^3$
36	7	COMPACTED TILL ZONE 1 & 1C	19100	M^3			101650					223000		22300	17220	364170	$19^{10}/M^3$
37	8	DUMPED TILL - ZONE 1A	133600	M^3			567860					1229300		133650	101645	2032455	$15^{21}/M^3$
38	9.	COMPACTED GRANULAR ZONE 2A	20700	M^3			101500			330800		220505		22000	16960	691765	$33^{42}/M^3$
39	10	" " ZONE 2C	8700	M^3			42630			87000		92610		9240	7125	238605	$27^{40}/M^3$
40	11.	DUMPED GRANULAR ZONE 2E	26300	M^3			102605			263000		270000		27940	21540	685085	$26^{00}/M^3$
41	12	DUMPED ROCKFILL ZONE 3	143000	M^3			1173100					443660		305530	240170	2162460	$15^{12}/M^3$
42	13.	" LARGE BLOCKS CLASS 1	37000	M^3			397800					206850		131540	117325	853515	$23^{10}/M^3$
43	14	" " " 71000MM CLASS 2	64400	M^3			765000					397800		252960	225625	1641385	$25^{50}/M^3$
44	15	" " " 71300MM CLASS 3	15000	M^3			187500					97500		62000	55300	402300	$26^{82}/M^3$
45	16	COMPACTED CRUSHED STONE ZONE 3A	10950	M^3			122500			219000		47000		28000	20000	436500	$39^{86}/M^3$
46	17	" ROCKFILL ZONE 3C	33740	M^3			345770					127825		90060	70790	634445	$18^{80}/M^3$
47	18	" " ZONE 3D	33900	M^3			219190					81175		54800	45550	400715	$11^{83}/M^3$
48	19	DUMPED CRUSHED STONE ZONE 3F	21000	M^3			214380			420000		80000		55850	36810	807040	$38^{43}/M^3$
49	20	PERCUSSION HOLES	1000	M			28000	14000				12000		5000	5000	64000	$64^{00}/M$
	21	CORED DIAMOND WITH CASING	200	M						80000						80000	$400^{00}/M$
	22	" " HOLES IN ROCK	50	M						17500						17500	$350^{00}/M$
51	23	CORE DIAMOND RIG STANDBY	140	HR						70000						70000	$500^{00}/HR$
53	24	DRILLING FOR JET GROUTING	9600	M						1440000						1440000	$150^{00}/M$
		TOTAL					4507305	50375		2979200		3561870	7680	1217865	993370	5317665	

JOB:
CONTRACT BID ITEM:
QUANTITY:

ESTIMATE WORK SHEET

SHEET 7 OF
PREPARED BY:
CHECKED BY:

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
							4507365	50375		2979200		3561870	7680	1317865	993370	13317665	
54	25	JET GROUTED CUT-OFF WALL	2800	M^2						4760000						4760000	1700.00/M^2
55	26.	GROUTING HOLE CLW CASING	1000	M			35450	2720				15752		4800	4160	66882	66.88/M
56	27	DRY CEMENT IN THE GROUT	50000	KG			25000		50000							75000	1.50/KG
57	28	GROUTING - SUCCESSFUL CONNECTIONS	60	EA			21420		10500							31920	532.00/EA
							4589175	57095	60500	7739200		3577622	7680	1322665	997530	18251967	
		GENERAL															
8	1.	DEWATERING STRUCTURE AREAS	LS				500000	220000				360000		250000	60000	1390000	
9	2.	EXCAVATIONS EXISTING COFFERDAMS	175000	M^3			1042500					400000		250000	210000	1902500	10.88/M^3
11	3.	OVERBURDEN EXCAVATIONS	8000	M^3			66500					24300		16000	13230	120030	15.00/M^3
12	4	APPROVED COMPACTABLE MATERIAL	70000	M^3			431500					157950		102500	86000	777950	11.12/M^3
13	5.	GRANULAR "B" MATERIAL	5800	M^3			28600		168960			28385		4000	4000	233945	40.33/M^3
14	6.	" "C" "	11500	M^3			56320		276000			56770		8000	8000	405090	35.20/M^3
15	7	MAINTENANCE GRADE 3	4500	M^3			24200		145125	19350		5050		3300	3300	200325	44.50/M^3
16	8	CSP CULVERT 900mmd	48	M			1450		12000			100		100	100	13750	286.00/M
17	9	GUIDERAIL	400	M					24000	24000						48000	120.00/M
18	10	GATE TYPE 1	2	EA						5000						5000	2500.00/EA
21	11.	OVERBURDEN EXCAV. DITCHES	2000	M3			12000					6000		6000	6000	30000	15.00/M^3
22	12.	GEOTEXTILE 300g/M^2	2500	M^2			7500		10000							17500	7.00/M^2
23	13	ROCKFILL PROTECTION 100-250MM	1000	M^3			12000					6000		3000	3500	24500	24.50/M^3
24	14.	" " 3E	2500	M^3			43000					22000		16300	13800	95100	38.00/M^3
25	15.	GEOTEXTILE 580g/M^2	4500	M^2			18000		22500							40500	9.00/M^2
26	16	CHAIN LINK FENCE + GATES	720	M						126000						126000	175.00/M
27-29	17	U/S BRIDGE OVER SPILLWAY	LS							6000000	PLUG					6000000	
		TOTAL					2243570	220000	658585	8174350		1066555		659200	407930	11430190	

JOB:
CONTRACT BID ITEM:
QUANTITY: INDIRECTS COSTS.

ESTIMATE WORK SHEET

SHEET 8 OF
PREPARED BY:
CHECKED BY:

	CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
1	1.	MOBILIZATION	LS				2500000			2000000		50000		30000	30000	4610000	
2	2.	SITE INSTALLATION	LS				1715000	800000	225000			800000				3540000	
	3	CONTRACTOR EQUIPMENT FOR INDIRECT	LS				6355400	280000		100000		1298000		1200000	860000	10093400	
	4	TEMPORARY WORKS	LS				160000	100000				10000		10000	10000	230000	
	5.	WINTER PROTECTION	LS.				250000	250000		100000		260000		500000	50000	1650000	PLUG
3	6	MANAGEMENT AND STAFF	LS.				12992000					1014000		1014000	589000	15609000	
	7	ATTENDANT LABOUR	LS				6400000									6400000	
	8	SERVICES	LS.				550000	500000		1400000		80000		80000	45000	2655000	
	9	EMPLOYEES TRAINING	LS				500000	100000				155000		50000	40000	845000	
4	10	HEALTH & SAFETY REQUIREMENT	LS				850000	300000				160000		160000	96000	1566000	
4	11	ENVIRONMENTAL "	LS.				1225000	155000		60000		260000		225000	140000	2065000	
4	12.	QUALITY ASSURANCE/QUALITY CONTROL	LS.				850000	50000				125000		125000	60000	1210000	
5	13.	LETTERS OF CREDIT	LS					1000000	PLUG							1000000	
5	14	PARENT GUARANTEE	LS					100000								100000	
5	15	INSURANCE	LS				?	1700000	PLUG							1700000	
6	16	WARRANTY	LS.				?										
	17	SITE MAINTENANCE	LS.				240000					200000		110000	100000	650000	
	18	FINANCIAL, CONTINGENCY	LS					250000	PLUG							250000	
	18	HEAD OFFICE & CONSULTANT FEES	LS.							50000	PLUG					50000	
7	19	DEMOBILIZATION	LS.				250000			1100000		25000		20000	20000	1415000	
		MISC TRAVEL, APTS ETC					4600000	5300000								5100000	
							35177400	10885000	225000	4810000		4377000		3524000	2048000	60738400	
		TOTAL															

JOB:
CONTRACT BID ITEM:
QUANTITY: MANAGEMENT STAFF

ESTIMATE WORK SHEET

SHEET 9 OF
PREPARED BY:
CHECKED BY:

CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
	PROJECT MANAGER	32	MTHS			640000					80000		80000	48000	848000	
	DEPUTY PROJECT MANAGER	32	MTHS			576000					80000		80000	48000	784000	
	CONSTRUCTION MANAGER	32	MTHS			525000					80000		80000	48000	733000	
	GEN FOREMAN (NIGHTS)	64	MTHS			1050000					160000		160000	96000	1466000	
	PROJECT ENGINEER	32	MTHS			530000					80000		80000	48000	738000	
	3-FIELD ENGINEERS	96	MTHS			1164000					160000		160000	96000	1580000	
	3-OFFICE ENGINEERS	96	MTHS			1164000									1164000	
	STUDENT ENGINEER	32	MTHS			280000									280000	
	QUANTITY SURVEYOR	24	MTHS			385000					50000		50000	25000	510000	
	2-DRAFT PERSONS	60	MTHS			600000									600000	
	3-INSTRUMENT MEN	60	MTHS			960000					150000		150000	90000	1350000	
	2-RODMEN	60	MTHS			810000									810000	
	2-CONCRETE SUPERS	36	MTHS			594000					72000		72000	36000	774000	
	2-FORMWORKS SUPERS	36	MTHS			594000					72000		72000	36000	774000	
	RCC - CONSULTANT	12	MTHS			270000					30000		30000	18000	348000	
	OFFICE MANAGER	36	MTHS			450000									450000	
	4-CLERKS	128	MTHS			1060000									1060000	
	SECRETARY	32	MTHS			320000									320000	
	SWITCH BOARD OPERATOR	32	MTHS			320000									320000	
	2 WAREHOUSE ATTENDANTS	64	MTHS			700000									700000	
	TOTAL					12992000					1014000		1014000	589000	15609000	

JOB:
CONTRACT BID ITEM:
QUANTITY: SITE INSTALLATION

ESTIMATE WORK SHEET

SHEET 10 OF
PREPARED BY:
CHECKED BY:

CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
	OFFICES + SUPPLIES	32	MTHS			50000	225000	225000							500000	
	GARAGE + WAREHOUSE	32	MTHS			500000	225000				600000				1325000	
	LUNCH ROOMS + JANITOR	32	MTHS			1065000	200000								1265000	
	WASH ROOMS + SUPPLIES	32	MTHS			50000	50000				200000				300000	
	CARPENTAR SHOP	12	MTHS			50000	100000								150000	
						1715000	800000	225000			800000				3540000	
	CONTRACTOR EQUIPMENT FOR INDIRECTS															
	SERVICE TRUCKS	32	MTH			425000					100000		10000	65000	690000	
	WELDING TRUCK	32	MTHS			425000	70000				100000		100000	65000	760000	
	STAKE + HIAB	32	MTHS			425000	10000				120000		100000	75000	730000	
4-MECHANIC	MECHANICS TRUCK	32	MTH			1830400					100000		100000	65000	2095400	
	MASTER MECHANIC	32	MTHS			480000					100000		100000	60000	740000	
	PITMAN + DRIVER	32	MTHS			450000					128000		100000	80000	758000	
	2 BUSES	64	MTHS			320000	150000								470000	
	TOWER LIGHTS	32	MTHS								150000		100000	50000	300000	
						4855400	230000				798000		700000	460000	6543400	
	CRANE SUPPORT	32	MTHS			2000000	50000		100000		500000		500000	400000	3550000	
						6355400	280000		100000		1298000		1200000	860000	10093400	
	TOTAL															

JOB:
CONTRACT BID ITEM:
QUANTITY:

ESTIMATE WORK SHEET

SHEET 11 OF
PREPARED BY:
CHECKED BY:

CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
	SERVICES															
	COMMUNICATIONS	32	MTHS				200000								200000	
	GENERAL EXPENSE	32	MTH				100000								100000	
	WATER + ICE ETC	32	MTHS				100000								100000	
NION REP	PUBLIC RELATION	32	MTH			500000	50000				80000		80000	45000	755000	
	SANITARY PUMPING	32	MTHS			50000	50000								100000	
	LEGAL & AUDIT	32	MTH						150000						150000	
	PERMITS	32	MTHS						50000						50000	
	SMALL TOOLS	LS							1200000						1200000	
						550000	500000		1400000		80000		80000	45000	2655000	
	SITE MAINTENANCE															
	SNOW CLEARING					130000					100000		60000	50000	340000	
	LAY DOWNS AREAS					100000					100000		50000	50000	300000	
						230000					200000		110000	100000	640000	
	MISC.															
	PURCHASING AGENT	32	MTH			400000									400000	
	BOARD STAFF APTS	32	MTHS				500000								500000	
	TRAVEL STAFF						800000								800000	
	TRAVEL CRAFT						4000000								4000000	
						400000	5300000								5700000	
	TOTAL															

JOB:
CONTRACT BID ITEM:
QUANTITY:

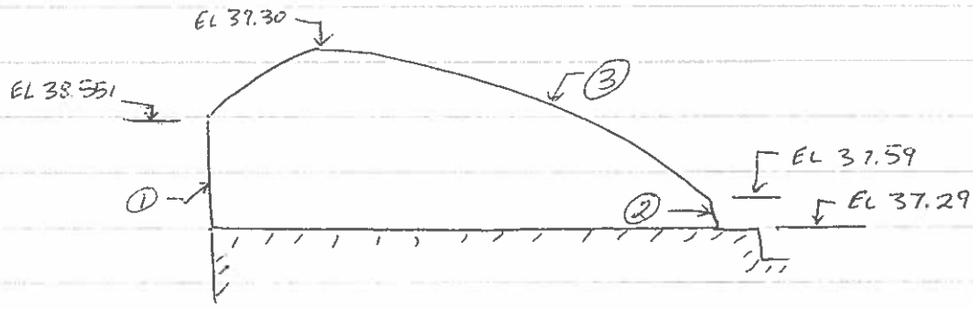
ESTIMATE WORK SHEET

SHEET OF
PREPARED BY:
CHECKED BY:

CODE	DESCRIPTION	ESTIMATED QUANTITY	ESTIMATED UNIT	UNIT COST LAB.	UNIT COST MAT.	LABOUR	MATERIAL CONSTR.	MATERIAL PERMANENT	SUB TRADES	HIRED TRUCKS	RENTS OUTSIDE	RENTS COMPANY	FUELS & LUBES	MAINT. & REPAIRS	DIRECT COST AMOUNT	DIRECT COST UNIT
	CONCRETE U/S, D/S AND CAP															
	CONCRETE	23500	M^3			2299500		8225000			162000	170000	135000	54000	11145500	474/M^3
	FORMWORK	21200	M^2			6465312	1512000				1188000		503720	360288	10029320	473.00/M^3
						8764812	1512000	8225000			1350000	170000	638720	414188	21174820	889.00/M^3
	RCC PRODUCE & PLACE	206250	M^3			1162500		21302325	2585000		1904000		409100	274300	27637225	134.00/M^3
	RCC MISC ITEMS/WATERSTOP ETC															
	FORMWORK	15000	M^2			2775000	1400000				612500		280000	175000	5242500	350.00/M^2
						3937500	1400000	21302325	2585000		2516500		689100	449300	32879725	160.00/M^3
	GALLERY + ACCESS	4500	M^2			832500	420000				183750		84000	52500	1572750	350.00/M^2
						4770000	1820000	21302325	2585000		2700250		773100	501800	34452475	167.00/M^3
	CONVEYOR SYSTEM								3000000	PLUG					3000000	
	TOTAL															

Feb 5, 2014
TS

North Dam Qty's (Formwork)



(1.261)

① 330 x (38.551 − 37.29) = 416.13

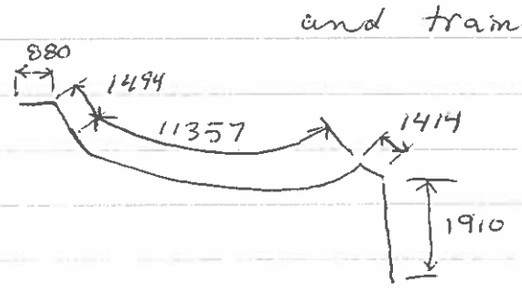
② 330 x 0.3 = 99.0

③ curve length from U/s @ 38.551 to D/s @ 37.59 = 6.671m
330 x 6.671 = 2201.43

OGEE Surface area 2716 m^2 ✓

D/s steps
Area ≈ 12560 m^2 including vertical surfaces covered by the flip buckets and training wall ✓

Flip Bucket



Length = 17055
Area = 330 x 17.055 = 5628 m^2 ✓

Feb 10, 2014
TS

North Dam Qtys
(Formwork) pg 2

D/S steps

RCC against Forms $4 \times 1.2 \times 330 = 1584$
$3 \times (37.29 - 14.49) = 68$
$1652\ m^2$

FC (cvc) against Forms 12560
$-\ 1650$
$10910\ m^2$

U/S Face

Total Approx $13600\ m^2$

FC (cvc) against Forms above 36.99 at north abutment
$= 1350\ m^2$

FC (cvc) against Forms below OGEE
$330 \times (37.29 - 28.99) = 2740$

Total cvc $4090\ m^2$
Total RCC $9510\ m^2$
$13600\ m^2$